



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,103	03/26/2004	Thomas E. Owen	090936.0505	8037

31625 7590 01/11/2006

BAKER BOTTS L.L.P.  
PATENT DEPARTMENT  
98 SAN JACINTO BLVD., SUITE 1500  
AUSTIN, TX 78701-4039

EXAMINER

SIEFKE, SAMUEL P

ART UNIT PAPER NUMBER

1743

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



## **DETAILED ACTION**

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: an "at" should be inserted before "least" in line 8 of claim 1. Appropriate correction is required.

Claim 6 is objected to because of the following informalities: It is depends from a cancelled claim. Examining will be performed on claim 6 as if it would depend from claim 1. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 6, 12, 13, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oita (USPN 3,616,273) in view of Schapleigh (USPN 2,166,611).

Oita teaches a method for quantitatively determining the nitrogen content of organic materials that comprises hydrocracking the organic material (natural gas), hydrogenating the nitrogen to ammonia, and measuring the quantity of ammonia present, when is then related to the original nitrogen composition (abstract). Energy is introduced into the system by way of catalyst (col. 3, lines 26-49). Hydrogen 10 is added to the system and mixed with sample inlet 20 then moves to vaporizing zone, hydrocracking zone, hydrogenation zone, then the ammonia is coulometetrically determined and nitrogen content is quantitated (col. 5, line 32- col. 6).

Oita does not teach provided hydrogen from a hydrocarbon.

Schapleigh teaches preparing hydrogen for use in ammonia production by hydrocracking a hydrocarbon (methane) to produce hydrogen, carbon monoxide and some uncracked hydrocarbons. The hydrogen is then purified to remove carbon monoxide and the uncracked hydrocarbons (col. 1). It would have been obvious to one having an ordinary skill in the art at the time of the invention to modify Oita to employ a hydrocarbon gas for the source of hydrogen in the production of ammonia because it is well known in the art that hydrocracking results in hydrogen that can be used for ammonia production.

Claims **8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Oita (USPN 3,616,273) in view of Schapleigh (USPN 2,166,611) and in further view of Faulhaber et al. (USPN 4,390,785).

Oita teaches a method for quantitatively determining the nitrogen content of organic materials through ammonia production.

The modified Oita does not teach using infrared absorption techniques for the measurement of ammonia.

Faulhaber teaches a method for remotely detecting gases in the atmosphere where an infrared absorption of ammonia is detected. Infrared absorption peaks are located at exactly the same wavelengths in a chemical compound's spectrum as its infrared emission peaks. Methane has an infrared spectrum which contains a series of very sharp peaks between 7.2 and 8.2 micrometers. All of those peaks can be selected for the identification of methane. Other gases which have well defined infrared absorption or emission regions include, for example, ammonia, ethylene, propane, sulfur dioxide, and water (col. 2, lines 4-16). Therefore it would have been obvious to one having an ordinary skill in the art to modify the modified Oita to employ an infrared absorption unit to detect ammonia in gases because it provides precise measurements and identification of an exhaust gas. It is well known that ammonia has a sharp peak at 10.34 and 10.74 micrometers and would have been obvious to one having an ordinary skill in the art to monitor these peaks when detecting for ammonia in a gas mixture.

Claims **25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Oita (USPN 3,616,273) in view of Schapleigh (USPN 2,166,611) and in further view of Vogtlin et al. (USPN 5,711,147).

Oita teaches a method for quantitatively determining the nitrogen content of organic materials through ammonia production.

The modified Oita does not teach a method for ammonia production by nonthermal plasma discharge unit.

Vogtlin teaches a gas treatment by the use of a nonthermal plasma unit. It would have been obvious to one having an ordinary skill in the art to modify the method of Jordan to employ a nonthermal plasma discharge unit in order to provide the energy needed for dissociating and associating nitrogen and hydrogen for ammonia synthesis because nonthermal plasma energy is more efficient and provides a safer working environment than the catalyst reformer and operating temperatures of Oita.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-3, 6, 8-10, 12, 13 and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel P. Siefke whose telephone number is 571-272-1262. The examiner can normally be reached on M-F 7:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Art Unit: 1743

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam P. Siefke



January 9, 2006



Jill Warden  
Supervisory Patent Examiner  
Technology Center 1700